Doosan Infracore
Machine Tools

PUMA 280

High Productivity Turning Center

High Performance and Heavy Duty Turning Center

Combining rigid slant bed construction with advanced technology for superior machining of mid to large sized workpieces.

PUMA 280

DOOSAN
PUMA 280L

Main Spindle

C-axis

360°(in 0.001° increment)

C-axis contouring provides main spindle positioning in increments of 0.001 degree. Three dimensional contouring, complex round and prismatic machining, square shoulder and lettering are accomplished by synchronizing the spindle with X and Z axes (on PUMA 280LM)

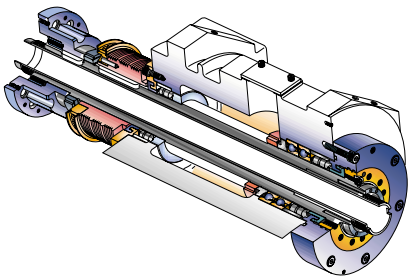
Note) * Puma 280M[LM] only

Max. spindle speed **Motor (30min)**

3500 r/min 22 kW

Main Spindle

Both main and sub spindle have characteristic as integral motor spindles that are whole covered with each oil cooling system to ensure remarkable range of applications from heavy duty cutting with high power at low speed to fine to finish cutting at high speed and optimize thermal displacement.

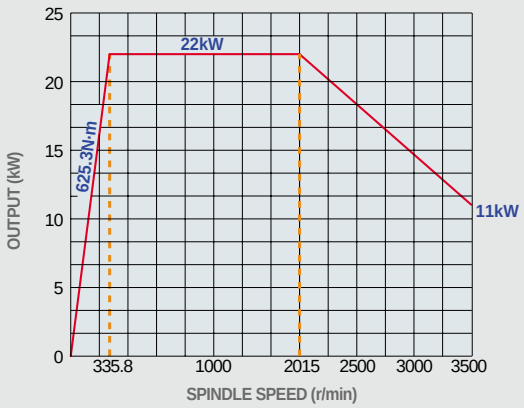


Headstock and Spindle

The powerful spindle motor enables heavy stock removal, reducing the number of roughing passes required.

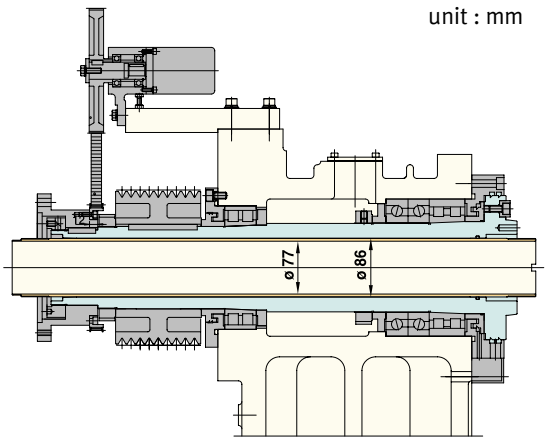
Power-Torque Diagram Main Spindle

- Spindle speed range : 3500 r/min
- Motor power : 22 kW

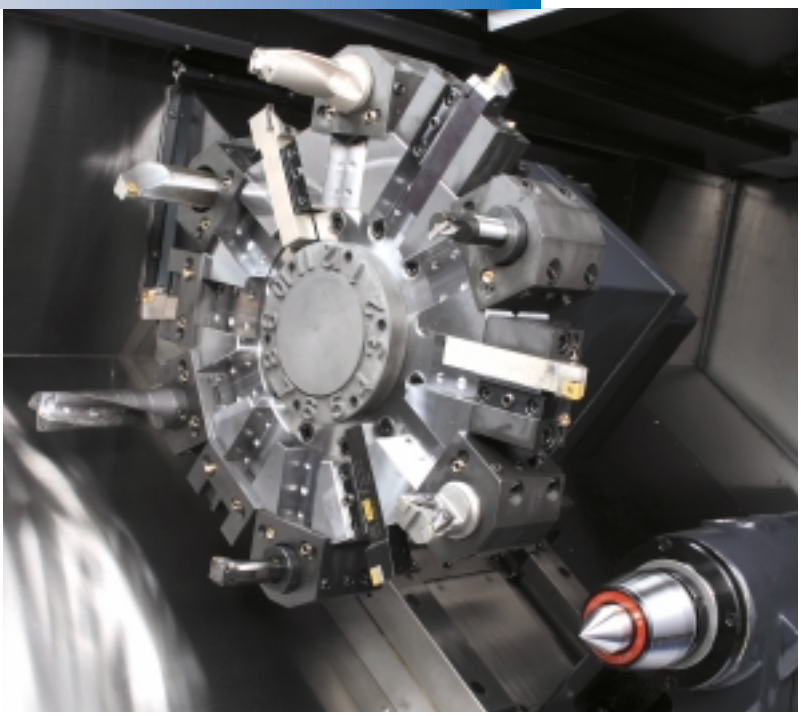


Cross Section of Main Spindle

unit : mm



Turret



Index time (1-station swivel)

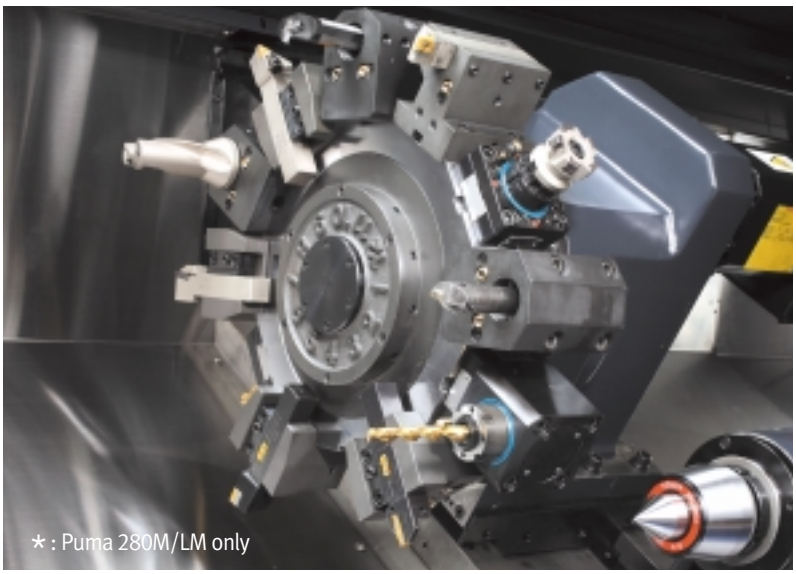
0.15 s

No. of tool station

10 stations

The heavy duty design provides unsurpassed rigidity for heavy stock removal, fine surface finishes, long boring bar overhang ratios, and extended tool life. Turret indexing is direct and bi-directional, with a 0.15 second next station index time. Turning tools are securely attached to the turret by wedge clamps.

Rotary Tool Turret*

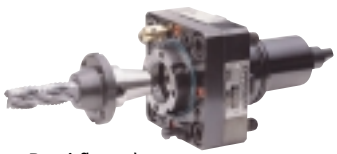


*: Puma 280M/LM only

No. of tool station

12 stations

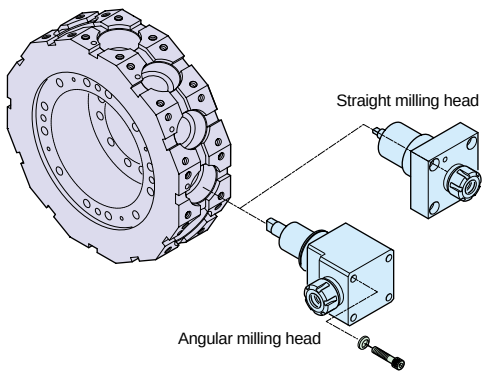
12 tool stations turret(BMT55P) make it possible to complete complicated parts requiring many tools in just one set-up. Reliable servo driven turrets reduce the total cycle time required to machine parts.



• Preci-flex adapter application

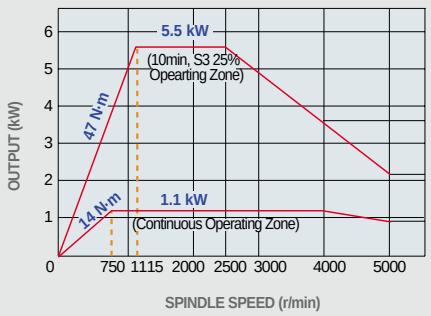
• Collet application

Radial BMT Turret

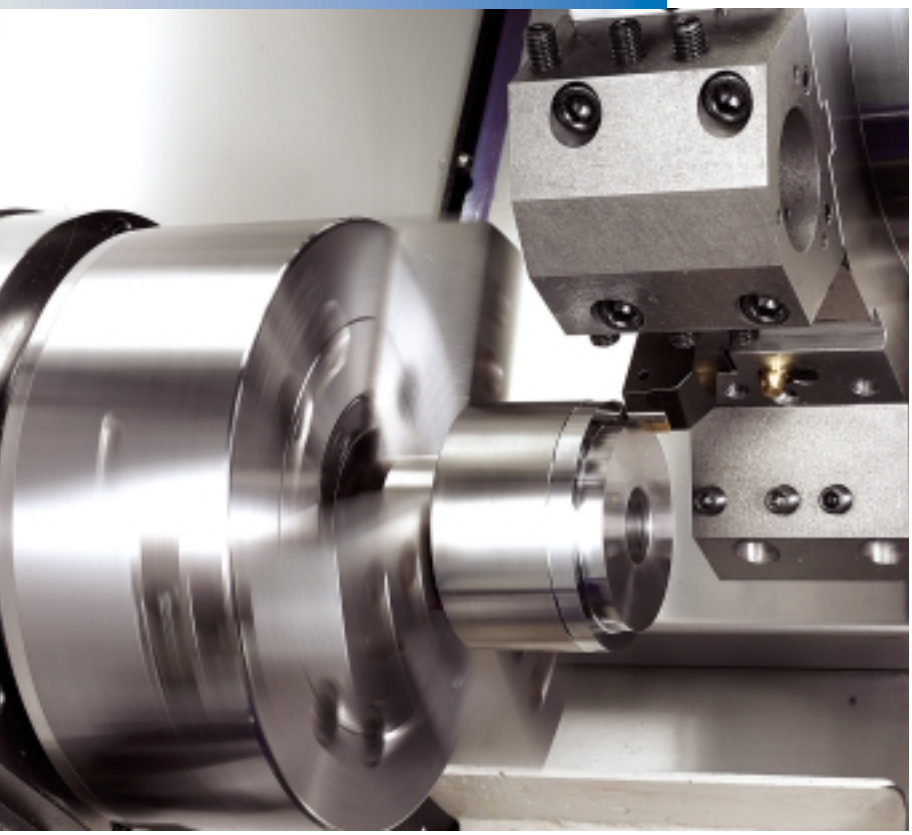


Rotary tool spindle power-torque diagram

● Spindle speed range : 5000 r/min



Machine Capacity



* Actual results may differ depending on cutting conditions.

Heavy-Duty Cutting

Chip removal rate

799 cm^3/min

Cutting depth

9 mm

Working Range

A : Max. turning dia.

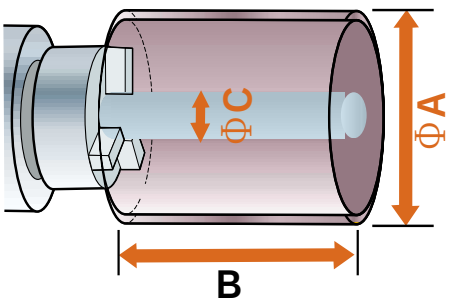
420/410* mm

B : Max. turning length

658/610* [1078/1030*] mm

C : Max. bar working dia.

76 mm

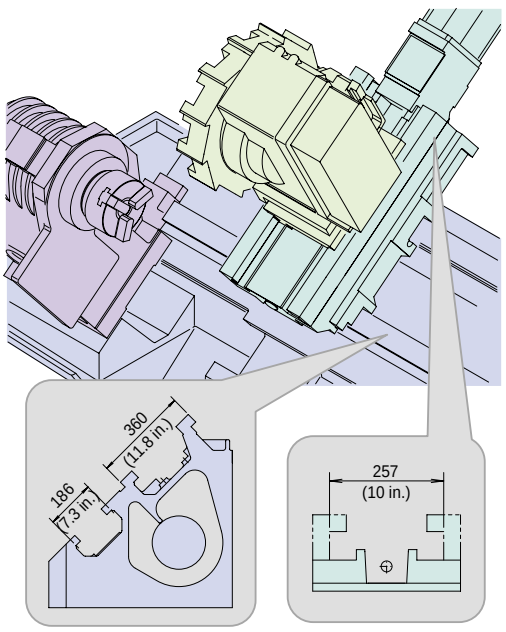


* on M type machine, [ ] : long bed machine

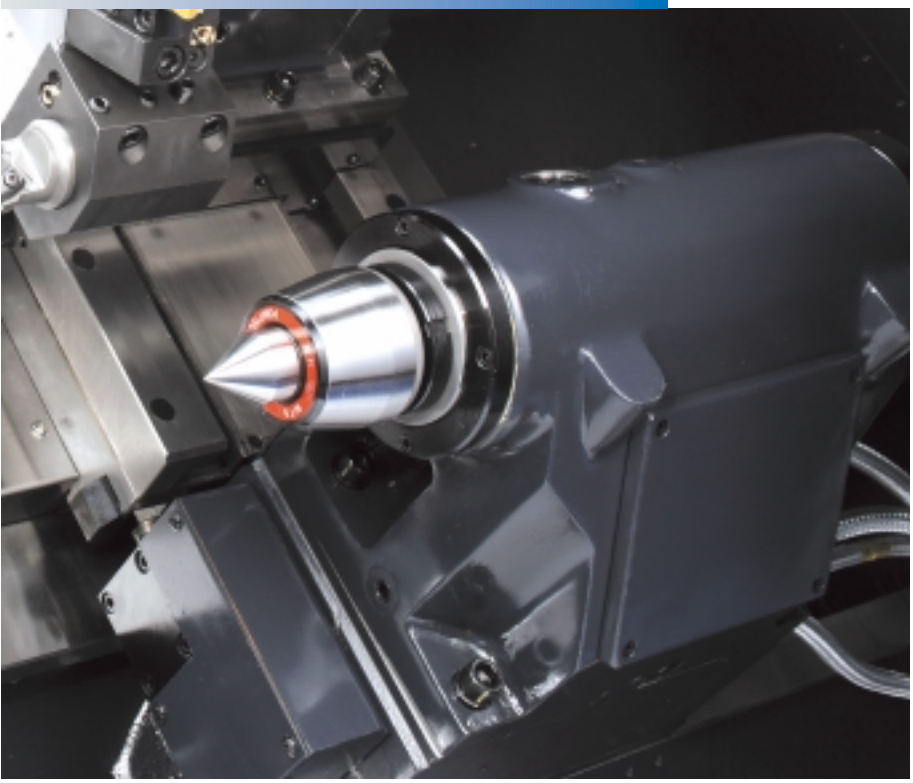
Slideway Width

X-axis : **257** mm

Z-axis : **360** mm



Additional Equipment



Heavy-Duty Cutting

Widely spaced guide ways and a heavy duty tail stock body ensure ample rigidity. The tail stock body can be positioned with traction bar that engages with the carriage. The traction bar movement and body clamping are programmable.

Tailstock specification		
Tail stock travel	mm	680 [1100]
Tail stock quill diameter	mm	100
Taper hole of tail stock quill		MT#5 <Live center>
Tail stock quill travel	mm	100

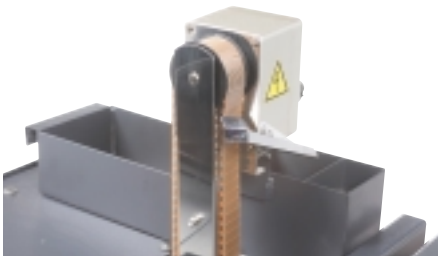
[ ] : Long bed machine

Collet chuck

Part catcher

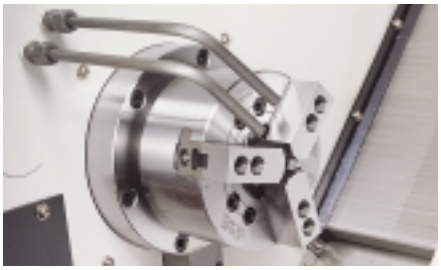
Tool pre-setter

Signal tower

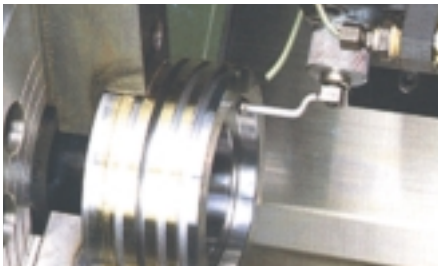


Oil skimmer

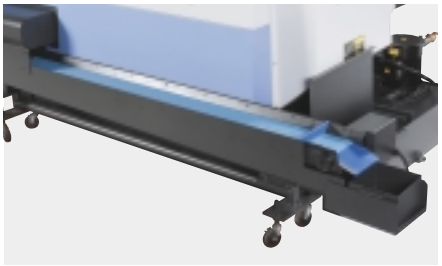
Chip conveyor



Chuck air(or coolant) blower



Work measurement



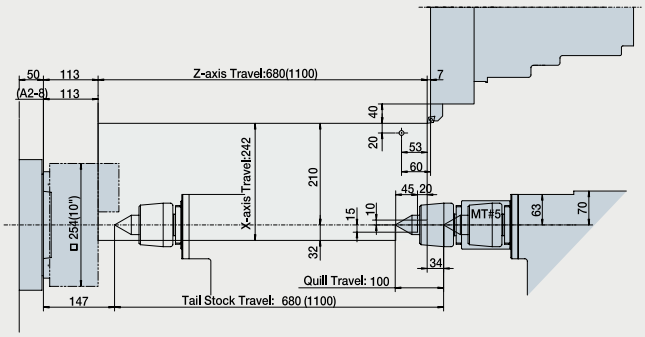
Part conveyor

Working Ranges

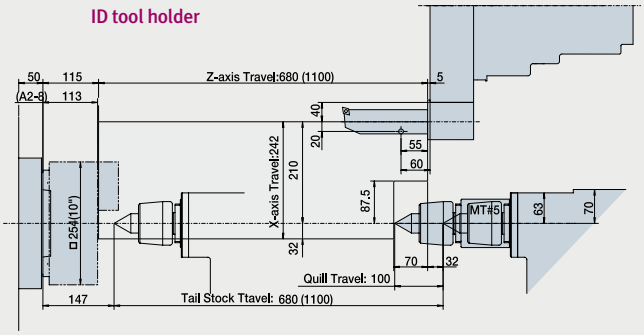
unit : mm

PUMA 280[L]

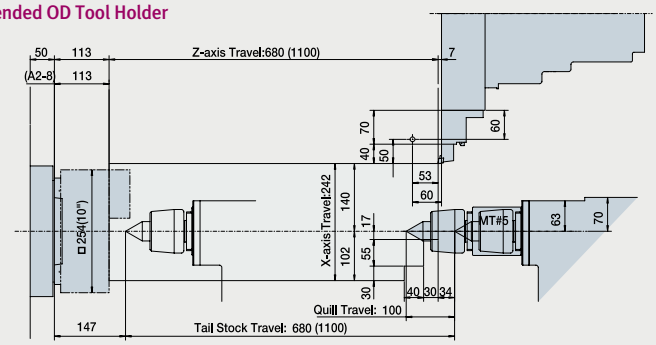
OD tool holder



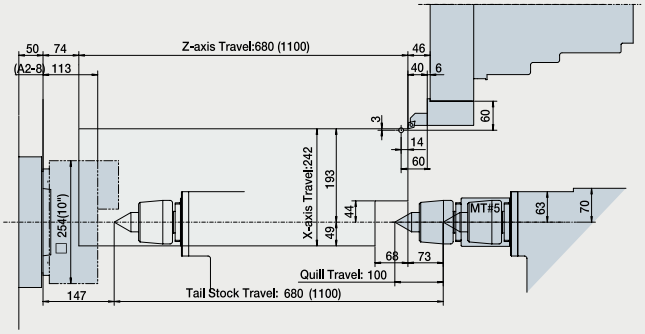
ID tool holder



Extended OD Tool Holder



Face Tool Holder



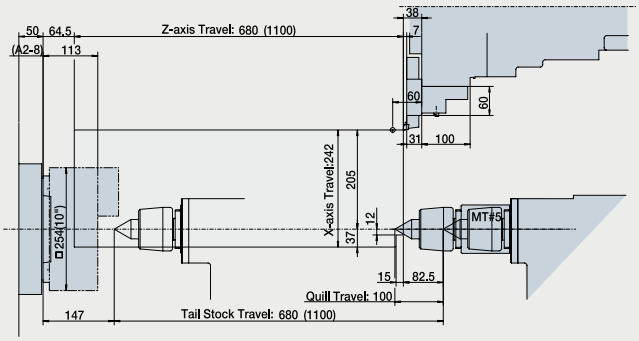
( ) : Long Bed

Working Ranges

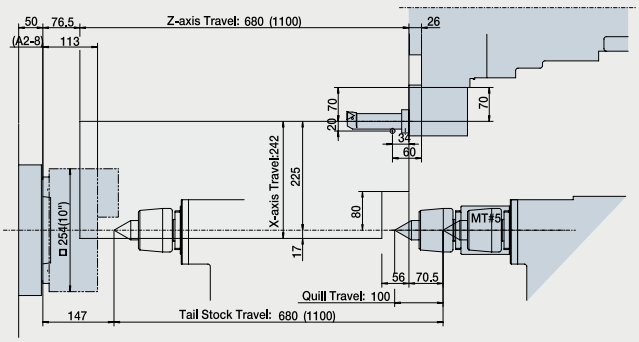
unit : mm

PUMA 280 M[LM]

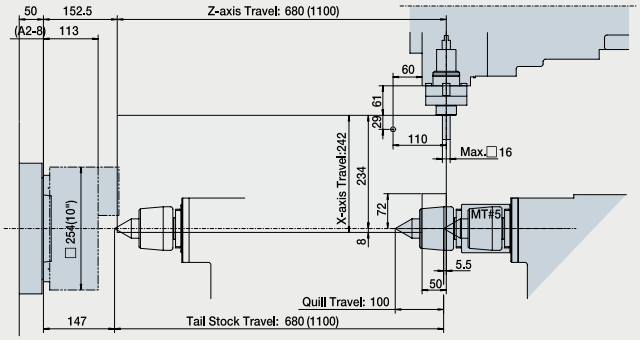
OD tool holder



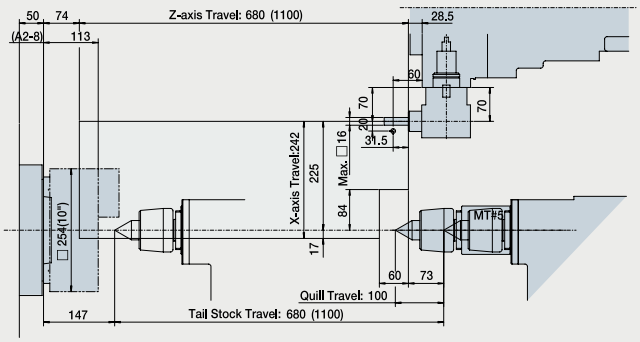
ID tool holder



Straight milling Unit



Angular milling Unit

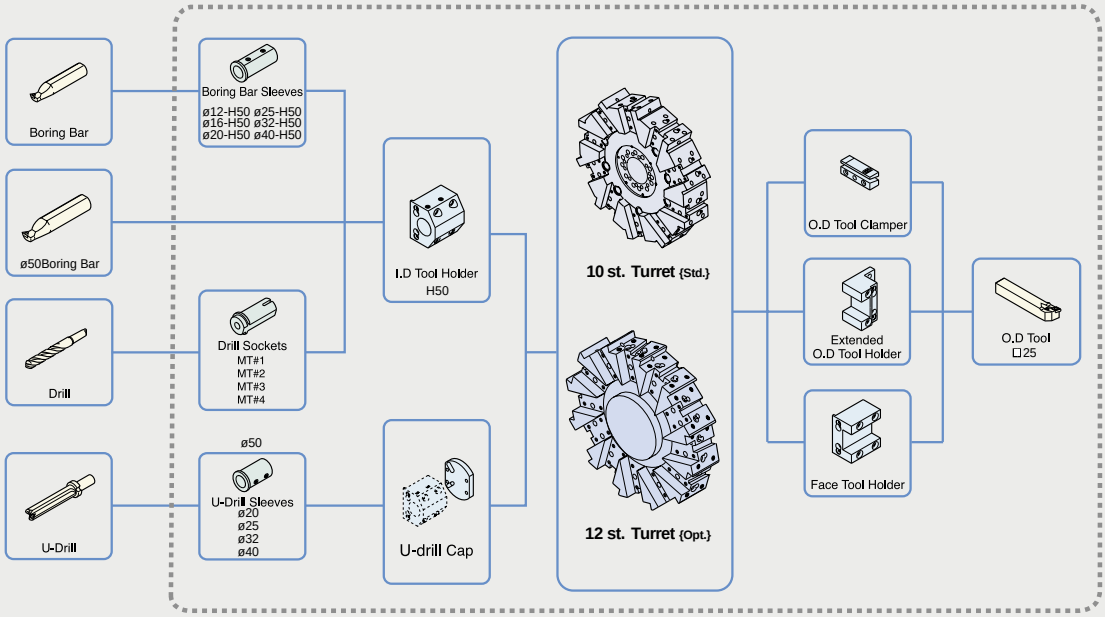


( ) : Long Bed

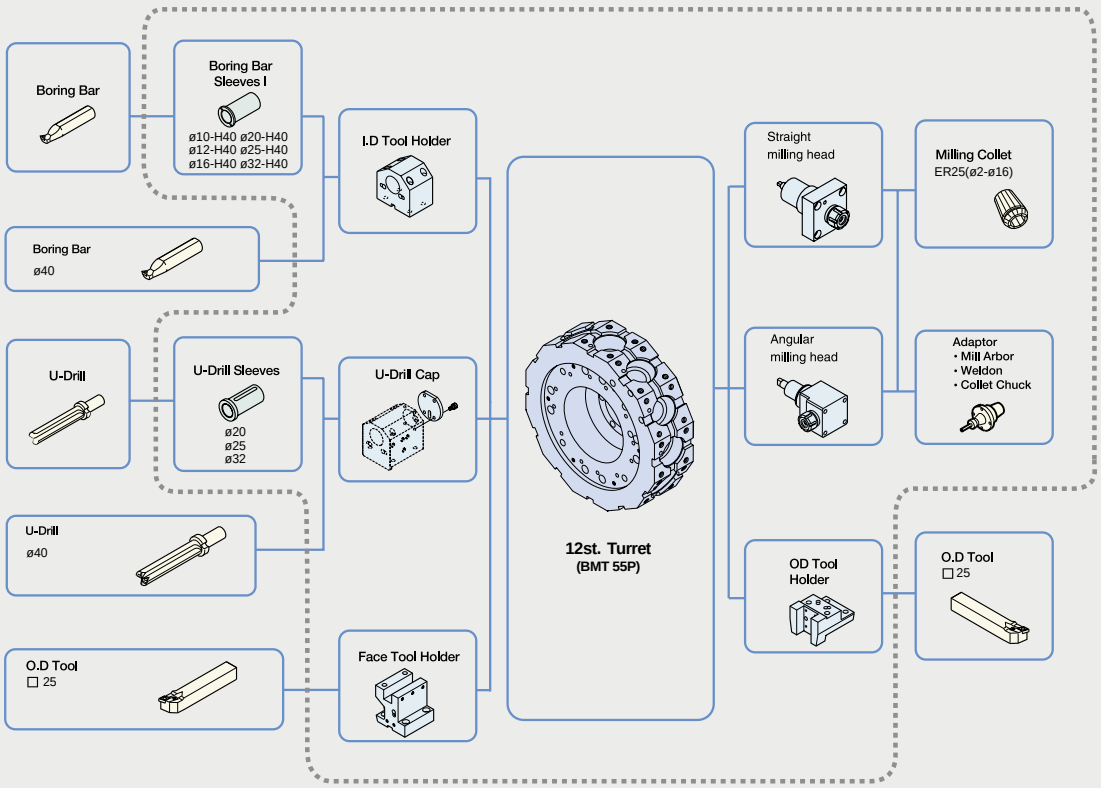
Tooling System

unit : mm

PUMA 280[L]



PUMA 280 M[LM]

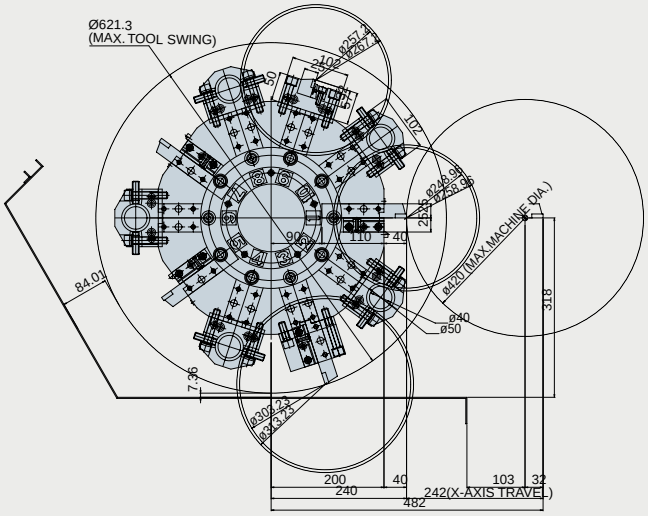


Tool Interference Diagram

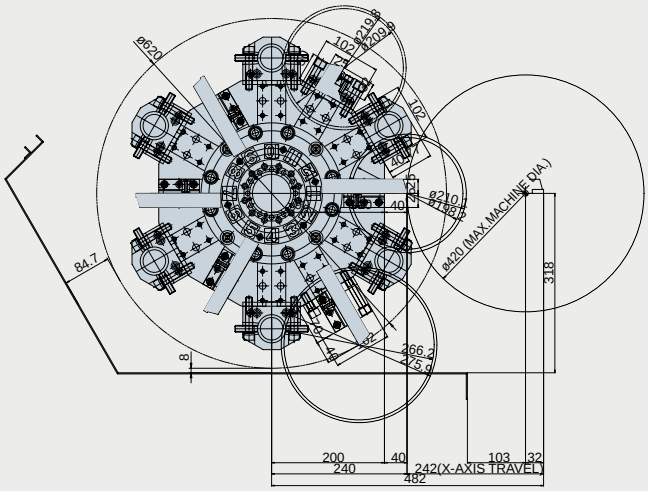
unit : mm

PUMA 280[L]

10 stations turret(Std.)

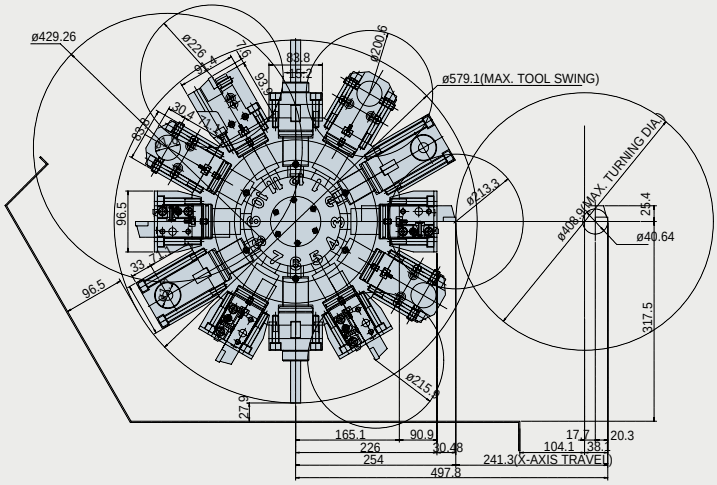


12 stations turret(Opt.)



PUMA 280 M[LM]

12 stations turret

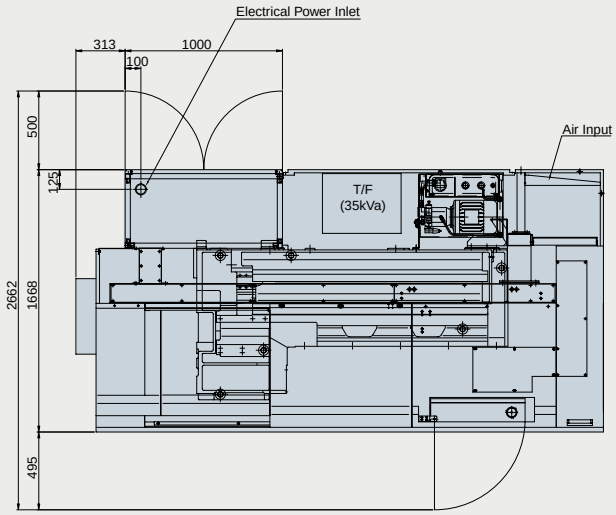


External Dimension

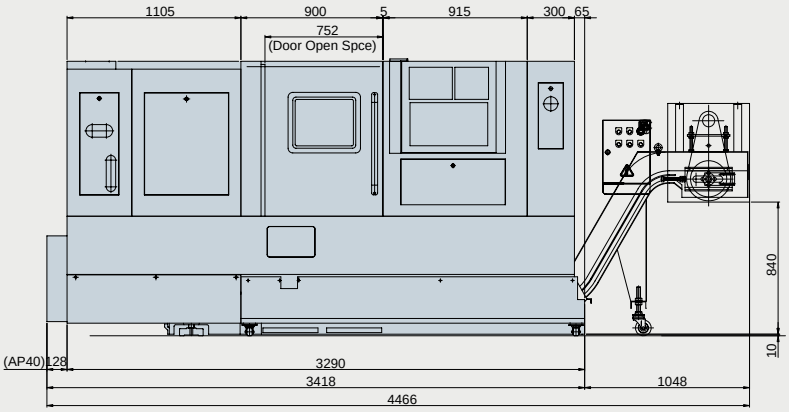
unit : mm

PUMA 280[M]

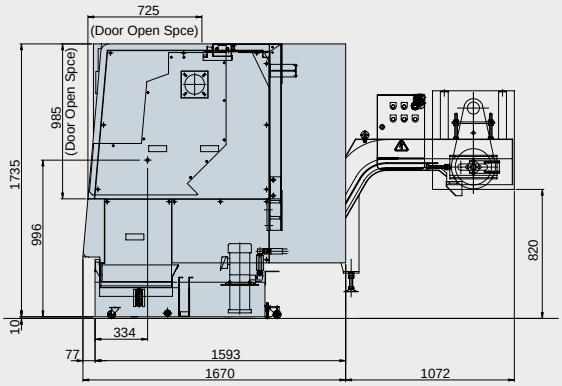
TOP VIEW



FRONT VIEW



SIDE VIEW

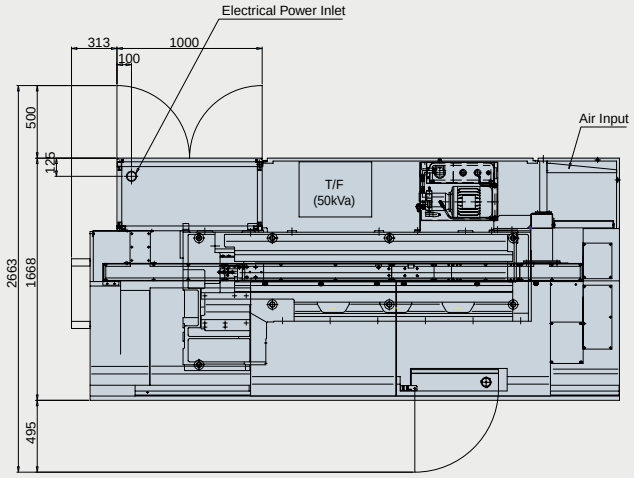


External Dimension

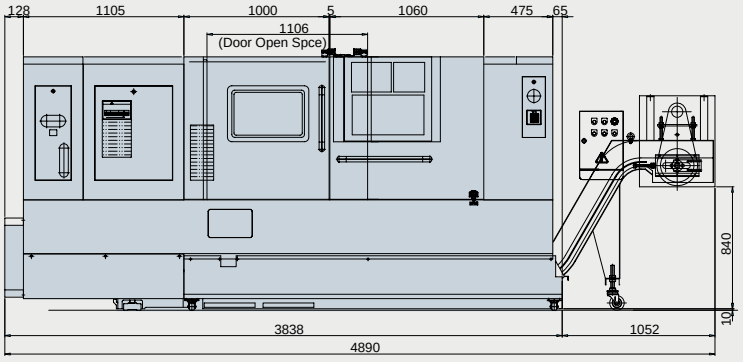
unit : mm

PUMA 280L[LM]

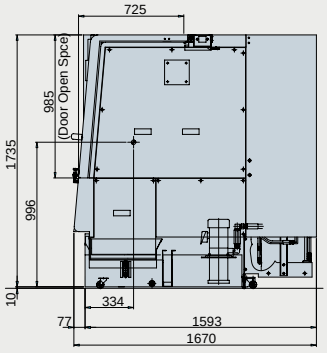
TOP VIEW



FRONT VIEW



SIDE VIEW



Machine Specifications

	Item			PUMA 280	PUMA 280L	PUMA 280M	PUMA 280LM
Capacity	Swing over bed		mm	630			
	Swing over saddle		mm	500			
	Recom. turning diameter		mm	255			
	Max. turning diameter		mm	420		410	
	Max. turning length		mm	658	1078	610	1030
	Bar working diameter		mm	76			
Main Spindle	Spindle speed		r/min	3500			
	Spindle nose		ASA	A2 #8			
	Spindle bearing diameter (Front)		mm	136			
	Spindle bore diameter		mm	86			
	Cs spindle index angle		deg	-		360(0.001°)	
Carriage	Travel distance	X-axis	mm	242(32+210)		242(37+205)	
		Z-axis	mm	680	1100	680	1100
	Rapid traverse	X-axis	m/min	20			
		Z-axis	m/min	24			
Turret	No. of tool station		st	10		12st(BMT55P)	
	OD tool height		mm	25×25			
	Boring bar diameter		mm	ø50		ø40	
	Indexing time (1st swivel)		s	0.15			
	Rotary tool spindle speed		r/min	-		5000	
Tail Stock	Quill diameter		mm	100			
	Quill bore taper		MT#	MT#5			
	Quill travel		mm	100			
Motors	Main spindle motor (30 min)		kW	22			
	Servo motor	X-axis	kW	3.0			
		Z-axis	kW	4.0			
	Rotary tool spindle motor		kW	-		5.5	
	Coolant pump		kW	0.4			
Power Source	Electric power supply(Rated capacity)		kVA	36.5		37.9	
Machine Size	Machine height		mm	1735			
	Machine dimension	length	mm	3418	3838	3418	3838
		width	mm	1670			
	Machine weight		kg	4700	5300	4900	5500

※ { } : Optional

Standard Feature

- ■Coolant supply equipment
- ■Foot switch
- ■Front door Safety Lock
- ■Full enclosure chip and coolant shield
- ■Hand tool kit (including small tool for operations)
- ■Hydraulic chuck and actuating cylinder
- ■Hydraulic power unit
- ■Levelling jack screw & plates
- ■Live tail center
- ■Lubrication equipment
- ■Manual Tail Stock
- ■Manuals
- ■Safety precaution name plates
- ■Soft jaws (total)
- ■Standard tooling kit (tool holder & boring sleeve)
- ■Work light

Optional Feature

- ■Air blast for chuck jaw cleaning
- ■Automatic door
- ■Automatic door with safety device
- ■Bar feeder interface
- ■Built-in center (MT#4)
- ■Chip conveyor
- ■Chip bucket
- ■Coolant temperature control unit
- ■Dual chucking pressure
- ■Electric power transformer
- ■Hardened & ground jaws
- ■Hyd. steady rest (SLU 1/2/B3.1)
- ■Parts catcher (on M type)
- ■Parts conveyor
- ■Pressure switch for chucking pressure check
- ■Proximity switches for chuck clamp detection
- ■Proximity switches for quill position detection
- ■Signal tower (Red, Yellow, Green)
- ■Special chucks
- ■Tool monitoring system
- ■Tool pre-setter (hydraulic type)

• Design and specifications are subject to change without prior notice.
• Doosan is not responsible for difference between the information in the catalog and the actual machine.

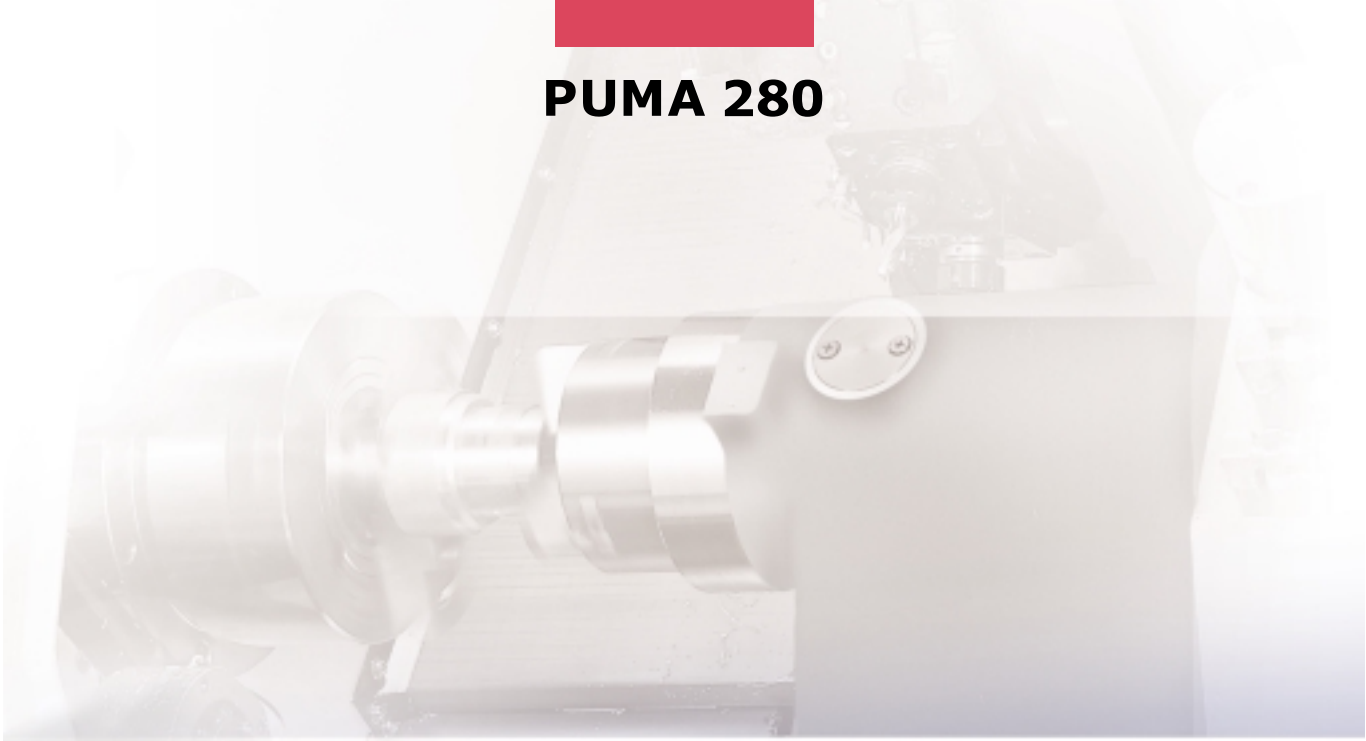
NC Specifications

	Item	Spec.	Fanuc 0i-TC	Fanuc 21i-TB
Controls	Controlled axes		X,Z,C(!)	X,Z,C(!)
	Simultaneously controlled axes	Std. 2 axes	3 axes(!)	3 axes(!)
Axis Functions	Backlash compensation	0~±9999 pulses	○	○
	Cs contouring control		○(!)	○(!)
	Follow-up / Chamfering on/off		○	○
	HRV control		○	○
	Increment system 1/10	0.0001mm / 0.00001″	○	○
	Least input increment	0.001mm / 0.0001″	○	○
	Stored stroke check1, 2	Overtravel control	○	○
Operation	Automatic operation(memory) / Buffer register		○	○
	Search function	Sequence NO. / Program NO.	○	○
	Manual handle feed	X1, X10, X100	○	○
Interpolation	1st, 2nd reference position check / return	G27/G28, -/ G30	○	○
	Circular interpolation	G02, G03	○	○
	Continuous thread cutting		○	○
	Dwell	G04	○	○
	Linear interpolation	G01	○	○
	Multiple threading /Thread cutting retract		○	○
	Polar coordinate interpolation	G12.1, G13.1	○(!)	○(!)
	Thread cutting / Synchronous cutting		○	○
Feed Functions	Feed per minute / Feed per revolution	G98 / G99	○	○
	Feedrate override	0 - 200 %(10% unit)	○	○
	Jog feed override	0 - 2000 mm/min	○	○
	Rapid traverse override	F0/ 25 / 100 %	○	○
	Tangential speed constant control		○	○
Axuiliary & Spindle Functions	1st Spindle orientation		○	○
	3rd spindle serial output		-	-
	Constantant surface speed control	G96, G97	○	○
	M-function	M3 digit	○	○
	Multi-spindle control		○(!)	○(!)
	Rigid tapping		○	○
	Spindle speed override	0~150%	○	○
	Spindle synchronous control		-	-
	Sub spindle orientation		-	-
Programming Functions	Absolute / Incremental programming		○	○
	Canned cycle for drilling	G80 series	○	○
	Custom macro B		○	○
	Decimal point programming/pocket calculator type decimal point programming		○	○
	Direct drawing dimension programming		○	○
	eZ Guide i	Conversational programming	Opt.	○
	Maximum program dimension	±99999.999mm/(±9999.9999 inch)	○	○
	Multi repetitive canned cycle	G70~G76	○(!)	○
	Multi repetitive canned cycle 2		○	○
	Optional block skip(without hardware)	Total 9(Only NC function)	○	○
	Program number / Sequence number	O4 digits / N5 digits	○	○
	Programmable data input	G10	○	○
	Sub program call	Nested holds4	4	4
	Tape format for FANUC series 10/11		○	○
	Tape format for FANUC series 15		-	-
	Work coordinate system selection	G52, G53, G54~G59	○	○
Tool Functions	Auto tool offset		○	○
	Tool monitoring system		-	Opt.
	Direct input of tool offset value measured B		○	○
	Tool geometry / wear compensation	Geometry & wear data	○	○
	Tool life management		○	○
	Tool nose radius compensation	G40~G42	○	○
	Tool number command(T-code function)	T2+2 digits	○	○
	Tool offset pairs		64	64
	Tool offset value counter input		-	○
Editing Op. Functions	Background editting		○	○
	Expanded part program editting	Copy, Move, Change of NC program	○	○
	No. of Registered programs		400ea	200ea
	Part program editing / Program protect		○	○
	Part program storage length銀1		640m	640m
Setting & Display	Display of spindle speed and T-code at all screen		○	○
	Help function	Alarm&Operation display	○	○
	Self diagnostic function		○	○
	Servo setting screen / Spindle setting screen		○	○
	Tool path graphic display		○(!)	Opt.(!)
Data Input & Output	I/O interface	RS-232C	○	○
	Memory card input and output		○	○
	Reader puncher control	CH1 interface	○	○
Other Functions	Ethernet function	Embedded ethernet function	Opt.	○
	MDI / DISPLAY unit		8.4″Color LCD	10.4″color LCD
	PMC system		○	○

銀1 : Standard Part program length is different on export condition. On the addition of optional functions, its length can be reduced.

○:Std OPT:Option (!):only M type

PUMA 280



http://domss.doosaninfracore.com

Sales & Support Network

ARGENTINA/Rosario **AUSTRALIA**/Melbourne/Sydney **AUSTRIA**/Vienna **BELGIUM**/Gullegem **BRAZIL**/Sao paulo **BULGARIA**/Sofia **CANADA**/Edmonton/Montreal/Toronto /Vancouver **CHILE**/Santiago **CHINA**/Beijing/Chongqing/Guangzhou/Shanghai/Shenyang **COLOMBIA**/Bogota **CZECH**/Brno **DENMARK**/Randers **EGYPT**/Cairo **FINLAND**/Tampere **FRANCE**/Annecy **GERMANY**/Dusseldorf **GREECE**/Athens **HONG KONG**/Kowloon **HUNGARY**/Budapest **INDIA**/Bangalore/Pune **INDONESIA**/Jakarta **ISRAEL**/Herzlia **ITALY**/Parma **MALAYSIA**/Puchong **MEXICO**/Guadalajara /Mexico City /Monterrey /Vera Cruz **NETHERLANDS**/Goorn **NEW ZEALAND**/Auckland **NORWAY**/Oslo **PAKISTAN** /Islamabad **POLAND**/Krakow **PORTUGAL**/Lisbon **ROMANIA**/Bucharest **RUSSIA**/Moscow **SINGAPORE**/Singapore **SLOVENIA**/Ljubljana **SOUTH AFRICA**/Kempton Park **SPAIN**/Barcelona **SWEDEN**/Stockholm **SWITZERLAND**/Zurich **TURKEY**/Istanbul **THAILAND**/Bangkok **U.A.E**/Sharjah **U. K.**/Leamington **U.S.A.**/Atlanta/Birmingham /Charlotte/Chicago/Cincinnati/Cleveland/Dallas/Denver/Detroit/Houston/Indianapolis/Kansas City/Little Rock/Los Angeles/Milwaukee/Minneapolis/New Orleans/Norfolk/Philadelphia/Phoenix /Pittsburgh/Portland/Rochester/Salt Lake City/San Diego/San Francisco/Seattle/Springfield/St. Louis/Tampa/Trenton/Tulsa **VENEZUELA**/Valencia **VIETNAM**/Hanoi

---

DOOSAN **Doosan Infracore**
Machine Tools

Head Office : Doosan Tower 22nd FL., 18-12, Euljiro-6Ga, Jung-Gu, Seoul, Korea 100-730
Tel : ++82-2-3398-8651 **Fax :** ++82-2-3398-8699
E-mail : master@domss.com

Doosan Infracore America Corp.: 8 York Avenue, West Caldwell, NJ 07006, U.S.A.
Tel : ++1-973-618-2500 **Fax :** ++1-973-618-2501

Doosan Infracore Germany GmbH : Hans-Böckler-Strasse 29, D-40764 Langenfeld-Fuhrkamp, Germany.
Tel : ++49-2173-8509-10 **Fax :** ++49-2173-8509-60

China Representative Office : 9-101 Xinmao Building, 99 Tianzhou Road, Caohejing Hi-Tech Development Shanghai, China 200233 **Tel :** ++86-21-5445-1155 (812,815) **Fax :** ++86-21-64403389

Design and specifications are subject to change without prior notice. *i-ser* EU0803SP